

ACT Levels: Trigonometry

Name _____

Since trigonometry is seen by the ACT as “higher math,” these practice questions are categorized as either medium or hard only; they make up about 7% of the ACT Mathematics Test and will usually only appear in the latter half of the test.

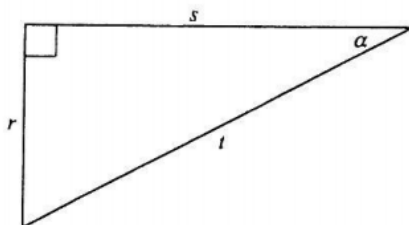
DIFFICULTY LEVEL: MEDIUM

Do your figuring here

1. The sides of a right triangle measure 5 in, 12 in, and 13 in. What is the cosine of the acute angle adjacent to the side that measures 12 in ?

- A. $\frac{5}{12}$
- B. $\frac{5}{13}$
- C. $\frac{12}{13}$
- D. $\frac{13}{12}$
- E. $\frac{12}{5}$

2. In the right triangle pictured below, r , s , and t are the lengths of its sides. What is the value of $\tan \alpha$?

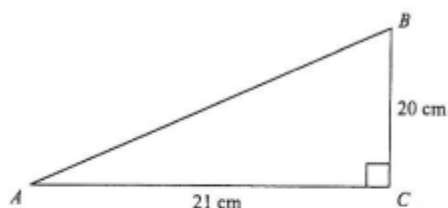


- F. $\frac{r}{t}$
- G. $\frac{s}{t}$
- H. $\frac{t}{r}$
- J. $\frac{r}{s}$
- K. $\frac{t}{s}$

3. If $\tan \beta = \frac{3}{4}$, then $\sin \beta = ?$

- A. $\frac{3}{5}$
- B. $\frac{3}{4}$
- C. $\frac{4}{5}$
- D. $\frac{4}{3}$
- E. $\frac{5}{4}$

4. In the right triangle shown below, $\cos \angle A = ?$



- F. $\frac{20}{21}$
- G. $\frac{20}{29}$
- H. $\frac{21}{29}$
- J. $\frac{29}{21}$
- K. $\frac{21}{20}$

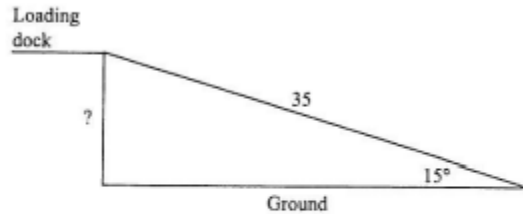
DIFFICULTY LEVEL: HARD

5. For values of x where $\sin x$, $\cos x$, and $\tan x$ are all defined,

$$\frac{(\cos x)}{(\tan x \sin x)} = ?$$

- A. $\frac{\cos^2 x}{\sin^2 x}$
- B. $\tan^2 x$
- C. 1
- D. $\sin^2 x$
- E. $\sec x$

6. As shown in the figure below, a ramp leading from a loading dock is 35 feet long and forms a 15° angle with level ground.



Given the trigonometric approximations in the table below, what is the height above ground of the loading dock, to the nearest 0.1 foot?

$\cos 15^\circ$	0.966
$\tan 15^\circ$	0.268
$\sin 15^\circ$	0.259

- F. 9.4
- G. 9.1
- H. 7.7
- J. 7.4
- K. 2.8